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Notes on the life-history and taxonomy of *Muscicapa dauurica umbrosa*, an overlooked Bornean canopy bird

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Introduction

Erwin's (1982) experiments into tropical canopy insect diversity suggested that the rainforest canopy may harbour the majority of the planet's terrestrial animal diversity, most of it undescribed. While birds are relatively well known (e.g. Mayr 1946), avian species of the tropical rainforest canopy feature among the least known, and a disproportionate number of new avian taxa have involved high-canopy forms such as Neotropical *Herpsilochmus* antwrens (e.g. Davis & O'Neill 1986, Whitney & Álvarez 1998, Whitney *et al.* 2000) and Old World *Muscicapa* flycatchers (e.g. Wells 1982, King *et al.* 1999). At Danum Valley (Sabah, Malaysia), one of the ornithologically best-explored sites in the Sunda Islands, Edwards *et al.* (2009) recently photographed a strikingly distinct new *Dicaeum* flowerpecker.

Here we concentrate on a Bornean flycatcher taxon, *Muscicapa dauurica umbrosa*, endemic to the high canopy of lowland rainforest. Recently described (Wells 1982), little is known about this form. We present some of the first life-history data including a documentation of its nest, and offer comments on its taxonomy.

Observations

FER visited Lambir Hills National Park in Sarawak (Malaysia; 4°11'52"N 114°02'34"E; 50 m a.s.l.), not far from the border with Sabah, from 2–12 June 2010. On most days during this period, he visited the canopy tower near the visitor centre of the national park in the early morning (approximately 06h30–07h30). On the first of these visits, he discovered a nest attended by two individuals of *Muscicapa dauurica umbrosa* (for identification see below).

The height of the nest above ground was estimated at 38 m, using the tower for reference. The nest was about 20 m from the tower platform across an 'aerial clearing'. It constituted an open-cup structure of twigs and mosses with an outer diameter of c.25 cm built in the crevice of a loose branch hanging perpendicularly from a vertical main branch of the canopy crown of an emergent rainforest tree (Plate 1).

Two birds regularly attended this nest. They were never seen at the nest simultaneously, but occasionally sat together on a nearby branch. During the whole period, no pulli or juveniles were perceived. The nest was unattended for up to 4 minutes at a time, after which one of the two adults was usually seen flying to the nest and spending 1–4 minutes in and around it.

Both adults were moderately streaked on flanks and throat, and were rather rich rufous-brown on their upperparts, with rump

perhaps more intensely rufous (Plates 2, 3). No eye-ring was perceived, although Plate 2 erroneously suggests one. The basal half of the lower mandible was rich orange.

Discussion

Breeding phenology

The only previous information on the life history of *M. dauurica umbrosa* comes from Wells & Francis (1984) who collected a pair of adults with enlarged testes and brood-patch, respectively, on 27 July 1983 near Sepilok (Sabah, Malaysia), and subsequently collected a pair tending a fully grown juvenile on 8 July 1984 at the same locality. Their data coincide well with ours to suggest that the annual breeding period of *M. d. umbrosa* (at least June–July) encompasses the height of the northern summer, when no northern migrants of *M. dauurica* would be present in Borneo. As Wells (1982) pointed out when discussing the biogeography of the widespread Siberian breeder *M. d. dauurica* (or *M. latirostris cinereoalba*, following the nomenclature of the time), the presence of a resident form in a small part (north-eastern Borneo) of the wintering range of the former is unusual for Oriental birds, and nothing is known about the ecological interactions between the two. The timing of breeding of *umbrosa* in June and July may well be due solely to the regional climate, which is slightly drier from April to October than at other times, if it is not simply evading northern migrants during the rearing of the young.

Coloration and identification of this taxon

Little is known about *M. d. umbrosa* in life. The species is rarely observed by field ornithologists, probably owing to its canopy-inhabiting lifestyle and vocal and behavioural inconspicuousness, as in other *Muscicapa* flycatchers. During a total of eight months of birdwatching activity in Sabah and Sarawak, JAE has observed *M. d. umbrosa* on only two occasions, both in the Danum Valley conservation area (Sabah; 5°1'12"N 117°44'48"E) in June 2007 and May 2009. Encounter rates for other field ornithologists with experience in Borneo are similarly low (R. O. Hutchinson verbally). Although there are field observations from Brunei (Mann 1987), the few specimens available are all from within Sabah, namely the type from Tawau (Wells 1982), one adult from Lahad Datu and four adults and one juvenile from Sepilok Forest (Wells & Francis 1984). There is thus a need to clarify the field identification of this bird.

The pair seen nesting at Lambir appeared moderately streaky on flanks and throat, not unlike *M. [d.] williamsoni*, and were



Plate 1. The nest (with one individual of *M. dauurica umbrosa* inside), Lambir National Park (Sarawak), June 2010. (F. E. Rheindt)



Plate 2. Front view of an adult *M. dauurica umbrosa* from across an aerial clearing at c.20 m distance, Lambir National Park (Sarawak), June 2010. (F. E. Rheindt)



Plate 3. Back view of an adult *M. dauurica umbrosa*, Lambir National Park (Sarawak), June 2010. (F. E. Rheindt)

matched in this trait by both individuals seen by JAE at Danum Valley. Only some of the specimens listed above display this level of streakiness. But Wells & Francis (1984) mention this could well be a variable character akin to the geographically proximate Ashy-breasted Flycatcher *M. randi* from the Philippines. Our observations from Lambir and Sabah coincide with specimens with respect to the lack of a perceptible eye-ring, which sets this taxon apart from northern migrating nominotypical individuals.

The most salient features of the pair observed nesting at Lambir was their rich dark rufous-brown back coloration. The description of this feature by Wells (1982) and Wells & Francis (1984) is somewhat equivocal. Wells (1982) described *umbrosa* as dull grey-brown above, darker than the nominotypical. Two years later, Wells & Francis (1984) described the follow-up specimens as umber-brown above and identical in that character to the type. UMBER is a relatively rich earthen-brown hue, but D. R. Wells (*in litt.* 2012) confirms that none of the existing specimens of *umbrosa* appears quite as rufescent as the bird in Plate 3. However, Wells *et al.* (1986) showed that another Sundaic taxon, *williamsoni*, displays striking differences between earlier (unworn) rufescent and later (worn) drab-brown plumage stages during the breeding season. The taxon *umbrosa* may well exhibit a similar plumage cycle. This is supported by the fact that all five unequivocally adult *umbrosa* specimens were collected 4–8 weeks after the Lambir observations, in a period from 8–27 July, at a time when their plumage moult may have advanced and the rufescent coloration may have worn off. Wells *et al.* (1986) noticed similar changes from bright-rufescent to drab-brown back coloration in *williamsoni* over the course of mid- to late June. Therefore, the plumage of *umbrosa* may resemble *williamsoni* more closely than has hitherto been recognised.

The alternative explanation—that the Lambir observations refer to the taxon *williamsoni*—seems improbable. The latter has only been found breeding in the Thai-Malay peninsula, no further south than northernmost Malaysia. Although it has been recorded wintering further south on the Malay peninsula, Sumatra and Siberut (Wells *et al.* 1986), there is only one claimed specimen record from extreme westernmost Sarawak (Wells *et al.* 1986) as well as unconfirmed sightings from Brunei (Mann 1989) which may well refer to *umbrosa*. We have not inspected the Sarawak specimen (in the Natural History Museum, Tring, UK) and do not know whether *umbrosa* was considered as a possibility by its identifier. But even if it does constitute a migrant record of *williamsoni* on Borneo, we note that it is geographically removed from all records of *umbrosa*, and that there has never been a suggestion of breeding activity of *williamsoni* anywhere on Borneo. The Lambir Hills are almost 1,500 km from the nearest breeding ground of *williamsoni* in northern peninsular Malaysia, and our observations at the nest confirm their identity as breeders.

Taxonomic treatment of Malay-Sundaic forms

The Asian Brown Flycatcher *Muscicapa dauurica* (formerly called *M. latirostris*) is a common inhabitant of boreal, temperate and subtropical forests in East and South Asia. Siberian nominotypical populations winter widely in South-East Asia and constitute one of the region's commonest wintering songbirds in wooded habitats. This winter abundance in the Thai-Malay peninsula and Borneo has promoted the conflict in taxonomic treatments of individuals collected in this region.

Investigating plumages of Thai-Malay peninsular birds, Deignan (1957) noted that most museum specimens are northern winter visitors. However, he described a new species, *M. williamsoni*, based on a small number of individuals that seem to breed somewhere on the peninsula. *Muscicapa williamsoni* was diagnosed from northern *M. d. dauurica* on the basis of several plumage characters, but especially its distinct rufous rather than grey-brown upperparts (particularly rump). Earlier, *M. d. siamensis* from the mountains of

Vietnam and northern Thailand had been described as a subspecies on grounds of upperparts that are more rufous than those of northern Asian nominotypical birds, but Deignan (1957) insisted *williamsoni* is not a mere extension of this southward trend to a more rufous coloration: the northernmost members of *williamsoni* are much more rufescent than the southernmost members of *siamensis*, although the two approach each other geographically somewhere in south-eastern Burma.

Wells (1977) argued against Deignan's (1957) classification of *M. williamsoni* as a species, pointing out the existence of intermediate birds between *williamsoni* and nominotypical *daurica*, e.g. in the Kuala Lumpur region in winter. Wells *et al.* (1986) then clarified that *williamsoni* breeds in Burma at least to 17°N and south to the Thai-Malay border area, and winters as given above, from the Malay Peninsula south to Sumatra and Siberut Island. It was in this context that Wells (1982) described *M. d. umbrosa* from the lowland rainforests of Sabah (Malaysia) as an additional subspecies that does not engage in continent-wide long-distance migration. He considered *umbrosa* rather similar to *M. randi* from the Philippines in plumage. However, as noted above, the current adult specimens may be worn birds, and *umbrosa* may have a similar plumage cycle to *williamsoni* (Wells *et al.* 1986). The distribution gap between *williamsoni* and *umbrosa* narrowed during the last ice age (as recently as 17,000 years ago) and gene-flow could have been regular. Thus *umbrosa* should be suspected to be more closely related to *williamsoni* than to Philippine *randi*, which has never had a land connection to Borneo during the existence of this species complex.

Taxonomic treatment of the Malayan breeding form *williamsoni* has been contentious: some authorities treat it as a species (e.g. King *et al.* 1975, Jeyarajasingam & Pearson 1999, Robson 2000), others as a subspecies (e.g. Mayr *et al.* 1986, MacKinnon & Phillipps 1993, Clement 2006). The form *umbrosa*, in contrast, has been treated as a subspecies of *M. daurica* by all authorities. Based on the morphological traits indicated by Wells (1982), Wells & Francis (1984) and herein, such as wing formula, lack of or only indistinct eye-ring, and rich brown back coloration when breeding, *umbrosa* and *williamsoni* are comparatively different from northern *M. d. daurica*. In fact, certain traits, such as wing formula (Wells 1982), link them with other resident South-East Asian taxa (e.g. *M. randi* and Sumba Brown Flycatcher *M. segregata*) that have recently been considered to constitute good species (e.g. Clement 2006). The summer timing of breeding in both *umbrosa* and *williamsoni* may well happen to act as an isolating mechanism, preventing hybridisation with northern migrants.

Given these considerations, we argue that the current practice of affording some South-East Asian taxa species status (e.g. *M. randi*) while lumping others into *M. daurica* (e.g. *M. daurica umbrosa*) is mistaken. Instead, we hold that, depending on the species concept employed, there are three potential treatments: (1) either all Asian forms mentioned should be lumped into *M. daurica*, or (2) *williamsoni* and *umbrosa* should be split out as one species (*M. williamsoni*), or (3) both *williamsoni* and *umbrosa* should be given individual species status. We advocate treatment (2) pending further studies into the differences between the two taxa. The study of vocalisations—useful in other songbirds—may not be a fruitful avenue to test the correctness of this treatment, as *Muscicapa* flycatchers are infrequent and unsophisticated songsters, but molecular data may help establish how much gene-flow occurs or has occurred between the two forms.

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